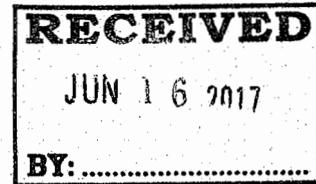




June 15, 2017



Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
8701 South Gessner, Suite 630
Houston, TX 77074

Attn: Ms. Terri Binns
Acting Director, Southwest Region, PHMSA

Re: CPF 4-2017-5008M
Notice of Amendment
Enterprise Crude Pipeline LLC ("Enterprise")

Dear Ms. Binns,

Enterprise is in receipt of the above referenced "Notice of Amendment" (NOA) dated March 30, 2017 and PHMSA's subsequent letter granting Enterprise a response-time extension to June 28, 2017. This letter constitutes Enterprise's timely response to the subject NOA.

NOA Item 1:

§195.202 Compliance with specifications or standards.

Each pipeline system must be constructed in accordance with comprehensive written specifications or standards that are consistent with the requirements of this part.

The Enterprise Engineering and Specifications STD .8706 Bending and Alignment (Rev No. 0.1, June 2012), does not provide adequate requirements for performing field bends of spiral-weld seam pipe. Enterprise was found to be constructing the Rancho Pipeline using spiral seam pipe but the specifications for bending did not address this type of pipe.

Enterprise's procedure provides detailed specifications for bending longitudinal-weld seam pipe but is silent on requirements for spiral-weld pipe actually being used to construct the Rancho pipeline.

Some of the specifications that must be addressed in the Enterprise's procedure include: position of bending shoes, whether the shoes can press on the spiral-weld seam, test bends, etc.... Enterprise must amend its procedure to meet the requirements in § 195.202 with relation to its use of spiral-weld seam pipe.

Enterprise Response to NOA Item 1:

Enterprise is committed to ensuring our Engineering Standards & Specifications are technically accurate and effective for their intended use. As such, periodic reviews and revisions, if applicable, are conducted as part of a continuous improvement program.

Enterprise conducted research on current field bending techniques and industry practices and initiated stakeholder meetings to review Engineering Standard 8706, *Field Bending and Alignment*, (STD.8706). Enterprise has amended Sections 2.2 and 2.3 to preclude spiral-weld pipe from weld seam and bending shoe positioning requirements. The revised STD.8706 dated May 2017 is attached and Sections 2.2 and 2.3 now state:

2.2. Slack, Longitudinal and Spiral Welds

“All overbends, sags and sidebends shall be made to provide an adequate amount of slack or flexibility in the pipeline and shall conform to engineering design tolerances. Where no such tolerances were provided, the Contractor shall consult with Company to seek guidance prior to proceeding. Weld seams shall be positioned as near as practicable to the neutral axis of the bend. Helically welded pipe is an exception to this weld seam position requirement.”

2.3. Bending Machine

“Each bend shall be made using Company approved bending machines having full encirclement bending shoes with a neoprene or urethane lining to produce a smooth, symmetrical bend, unless specified otherwise by Company. If the pipe is internally coated, the bearing surfaces of the mandrel shall be constructed to avoid permanently marking or damaging the internal coating. Position bending shoes and mandrels so as not to apply a point load to the seam weld and minimize stresses in the seam weld. Helically welded pipe is an exception to this bending shoe positioning requirement. No appreciable stretching or thinning of the pipe wall thickness shall be permitted.”

Additionally, Enterprise has amended Section 2.4 to include a table limiting the allowable minimum bend radii and applicable tolerances when using spiral-weld source pipe. Section 2.4 of STD.8706 now states:

2.4 Bending Limitation

- (1) Contractor shall follow the minimum bend radii limits, based on ASME B31.4, B31.8, and accepted industry practice listed below.

Minimum Bend Radii per Pipe Size		
Nominal Pipe Size	Bend Radius in Pipe Diameters	
	*Long Seam Pipe	Spiral Seam Pipe
NPS 12 and smaller	18D	24D
NPS 14	21D	28D
NPS 16	24D	32D
NPS 18	27D	36D
NPS 20 and larger	30D	40D

* Also applies to seamless pipe

- (2) Bend radius tolerances shall be $\pm 1\%$ of source pipe diameter (0.01D)

- (3) The contractor shall use a consistent method of measurement when both marking the pipe in preparation for bending and in subsequent post-bending inspections.
- (4) The bending operations shall be inspected to verify that the minimum allowable radius of the bend is not exceeded and that there is no wrinkling or excessive flattening of the pipe.

Finally, Enterprise has added Section 2.6 addressing material properties and the potential need for producing and testing prototype bends. Section 2.6 states:

2.6 Material Properties

- (1) Bends used in sour gas pipelines should meet the hardness requirements of NACE MR0175 in the as-bent condition. Bends exposed to or used in low-temperature service should meet toughness and tensile requirements in the as-bent condition.
- (2) The Company may request that prototype bends are made and tested to ensure that a particular field bending procedure produces bends meeting the material property requirements.

Safety Improvement Costs:

It is requested (not mandated) that Enterprise Crude Pipeline LLC maintain documentation of safety improvement costs associated with fulfilling this Notice of Amendment (preparation/revision of plans, procedures) and submit the total to [Terri Binns, Acting] Director, SW Region, Pipeline and Hazardous Materials Safety Administration.

Enterprise is hereby providing the safety improvement costs as requested:

Description	Total Cost
Costs associated with preparation/revision of plans and procedures	\$ 10,000

Should you have any questions, require further information in connection with the above or wish to discuss this matter in greater detail, please do not hesitate to contact our office. Enterprise welcomes the opportunity to discuss this response with PHMSA if further clarification is required.

Sincerely,



Graham W. Bacon
 Executive Vice President, Operations & Engineering
 Attachment